

## TWO NEW SPECIES OF THE GENUS *LORDIPHOSA* (DIPTERA, DROSOPHILIDAE) FROM CHINA

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**Abstract** This paper describes two new species of the genus *Lordiphosa* of Drosophilidae in Diptera from China, *L. forcipis* sp. nov. and *L. dentiformis* sp. nov. Some of type specimens are deposited in School of Life Sciences, Peking University, Beijing, China (PKU); some of them are deposited in Systematic Entomology, the Hokkaido University Museum, Hokkaido University, Sapporo, Japan (SEHU).

**Key words** Diptera, Drosophilidae, new species, China.

### *Lordiphosa forcipis* sp. nov. (Figs 1–5)

**Diagnosis.** Paramere (Figs 2–3) include 2 pairs of arched structures, ventral one with dorsally curved long processes haired from sub-medially to tip, ventrally curved processes sub-apically branched, shaped as asymmetrical chelicerae of crab; lateral-dorsal paramere with dorsally longer processes.

♀ ♂ Head. Eyes red. Ocellar triangle brown, ocelli yellow. Frontal vitta yellow, without interfrontal setulae. Fronto-orbital plate yellow. Face yellow, carina short. Clypeus brownish. Gena yellow, brownish anterio-ventrally. Occiput yellow. Pedicel brownish, with 2 stout setae; first flagellomere paler; terminal bifurcation of arista moderate, ariste with 6–7 upper branches and 2–3 lower branches. Palpus brownish, with 1 prominent apical seta.

Thorax. Yellow. Postpronotal lobe yellow; postpronotal setae 2, lower one longer. Acrostichal setulae in 6 rows. Basal scutellar setae divergent; apicals convergent and crossed.

Wing. Hyaline, yellowish. Veins yellow; r-m and dm-cu crossveins clear. C<sub>1</sub> setae two, subequal. R<sub>2+3</sub> slightly curved to costa at tip. R<sub>4+5</sub> and M<sub>1</sub> parallel. Halter yellowish.

Legs. Yellowish, paler at base. Preapical setae on all tibiae; apical setae on fore and mid tibiae. Fore 1<sup>st</sup> tarsomere slightly shorter than 3 succeeding tarsomeres together; mid and hind 1<sup>st</sup> tarsomeres as long as or slightly shorter than the rest together.

Abdomen. Tergites brownish; 1<sup>st</sup> tergite yellowish at middle and black at lateral margins. Sternites yellowish.

Male. Terminalia. Epandrium (Fig. 1)

yellowish, pubescent except caudal-dorsal margin, with ca. 7 setae from dorsal to lateral surface and ca. 7 setae on ventral margin. Cercus (Fig. 1) yellowish, oval, entirely pubescent and setigerous, with 3–4 short, stout setae at caudal-ventral corner. Surstylus (Fig. 1) yellowish, with ca. 13 primary prenisetae arranging in slightly concave row, upper 5–6 prenisetae longer, with a few short setae on ventral surface and several long setulae pointed up and inward on inner surface. Hypandrium (Figs 2–3) yellowish, nearly triangular, paramedian spines absent. Parameres yellowish. Aedeagus (Figs 2–3) yellowish, cylinder, with thin hairs on ventral-apical surface. Apodeme (Figs 2–3), yellowish, slightly broad in lateral view, approximately 2 times as long as aedeagus. Gonodopds (Fig. 2) brownish, fused and sclerotized, surrounding aedeagus.

Female. Terminalia. Oviscapt (Fig. 5) brownish, apically round; with ca. 10 lateral and ca. 5 marginal pegs, with 1 sub-apical ovisensilla. Antero-ventral bridge narrow. Spermatheca (Fig. 4) semicircular; introvert deep, nearly reached into inner tip of capsule. Introversion and duct both wrinkled.

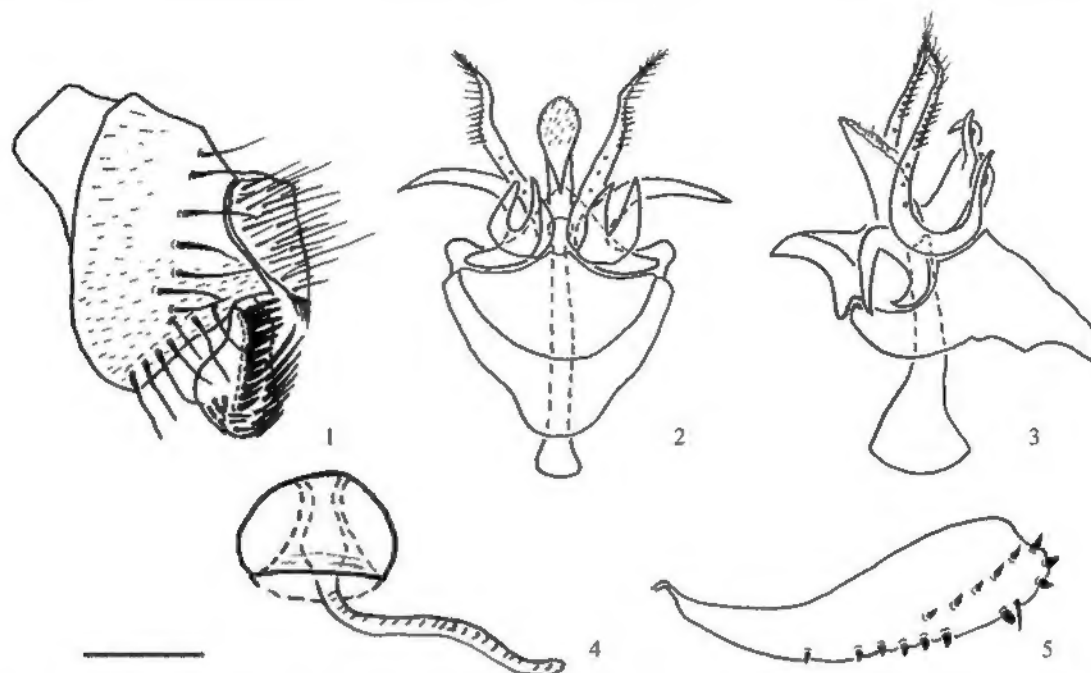
**Measurements (mm).** BL ♂ = 1.76 (1.48–1.86), BL ♀ = 1.84 (1.81–1.86), ThL ♂ = 0.71 (0.60–0.79), ThL ♀ = 0.81 (0.76–0.85), WL ♂ = 1.81 (1.65–1.94), WL ♀ = 1.95 (1.84–2.06), WW ♂ = 0.70 (0.60–0.76), WW ♀ = 0.82 (0.76–0.88).

**Indices.** arb ♂ = 5–7/2–3; arb ♀ = 6–7/3; FW/HW ♂ = 0.57 (0.52–0.67); FW/HW ♀ = 0.59 (0.53–0.64); ch/o ♂ = 0.45 (0.41–0.50); ch/o ♀ = 0.46 (0.45–0.46); prorb ♂ =

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Figs 1 - 5. *Lordiphosa forcipis* sp. nov. 1. Epandrium, cercus and surstylus. 2 - 3. Hypandrium, aedeagus, parameres and gonopods. 4. Spermatheca. 5. Oviscapt. 1, 3, 5. Lateral views. 2. Ventral view. Scale bar = 0.1 mm.

0.55 (0.50 - 0.62); prorh ♀ = 0.53 (0.50 - 0.56); rorb ♂ = 0.15 (0.13 - 0.21); rorb ♀ = 0.18 (0.13 - 0.22); vb ♂ = 0.48 (0.36 - 0.56); vb ♀ = 0.53 (0.50 - 0.55); dcl ♂ = 0.65 (0.57 - 0.75); dcl ♀ = 0.66 (0.64 - 0.67); scl ♂ = 1.44 (1.15 - 1.64); scl ♀ = 1.34 (1.27 - 1.40); orbito ♂ = 0.53 (0.40 - 0.71); orbito ♀ = 0.45 (0.40 - 0.50); dcp ♂ = 0.56 (0.50 - 0.61); dcp ♀ = 0.58 (0.56 - 0.60); scdp ♂ = 1.22 (1.10 - 1.33); scdp ♀ = 1.26 (1.25 - 1.27); C ♂ = 2.55 (2.40 - 3.00); C ♀ = 2.56 (2.49 - 2.63); 4c ♂ = 0.98 (0.88 - 1.06); 4c ♀ = 0.92 (0.84 - 1.00); 4v ♂ = 1.84 (1.78 - 2.00); 4v ♀ = 1.68 (1.49 - 1.86); 5x ♂ = 1.89 (1.45 - 2.11); 5x ♀ = 1.75 (1.57 - 1.92); ac ♂ = 2.22 (1.88 - 2.47); ac ♀ = 2.15 (2.11 - 2.18); M ♂ = 0.61 (0.47 - 0.71); M ♀ = 0.56 (0.49 - 0.62); C3F ♂ = 0.28 (0.21 - 0.34); C3F ♀ = 0.28 (0.27 - 0.28).

Holotype ♂, Emei Mountain, Sichuan Province, China, 16 July 1992, coll. M. J. Toda, deposited in PKU. Paratypes: 8 ♂♂, 2 ♀♀, same data as holotype, 7 ♂♂, 1 ♀ deposited in PKU, 1 ♂, 1 ♀ deposited in SEHU.

Distribution. China (Sichuan).

Remarks. This species belongs to *nigricolor* species-group, but can be distinguished from other species by the diagnostic characters, especially the paramere with 2 pairs of arched structures and asymmetrically branched chelicerae-shaped curved processes.

Etymology. "*forcipis*" refers to the chelicerae-

shaped processes of paramere.

#### *Lordiphosa dentiformis* sp. nov. (Figs 6 - 10)

Diagnosis. Epandrium (Fig. 6) caudal-ventrally fold inward into a plate, with one large tooth-like protuberance on this plate.

♀ ♂ Head. Eyes red. Ocellar triangle brown, ocelli yellow. Frontal vitta brownish, with interfrontal setulae. Fronto-orbital brown. Face brown, carina short, anteriorly reaching half part of facial region. Clypeus brown. Gena brown, dark-brown antero-ventrally. Occiput brown. Pedicel brown, with 2 stout setae; first flagellomere yellow; terminal bifurcation of arista moderate, arista with 4 - 6 upper branches and 2 - 3 lower branches. Palpus brown, with 1 prominent apical seta.

Thorax. Brown. Postpronotal lobe brown; postpronotal setae 2, lower one longer. Acrostichal setulae in 6 rows. Basal scutellar setae divergent; apicals convergent and crossed.

Wing. Hyaline, yellowish. Veins brown; r-m crossvein clear, dm-cu slightly cloud.  $C_1$  setae two, subequal.  $R_{2+3}$  slightly curved to costa at tip.  $R_{4+5}$  and  $M_1$  parallel. Halter yellowish.

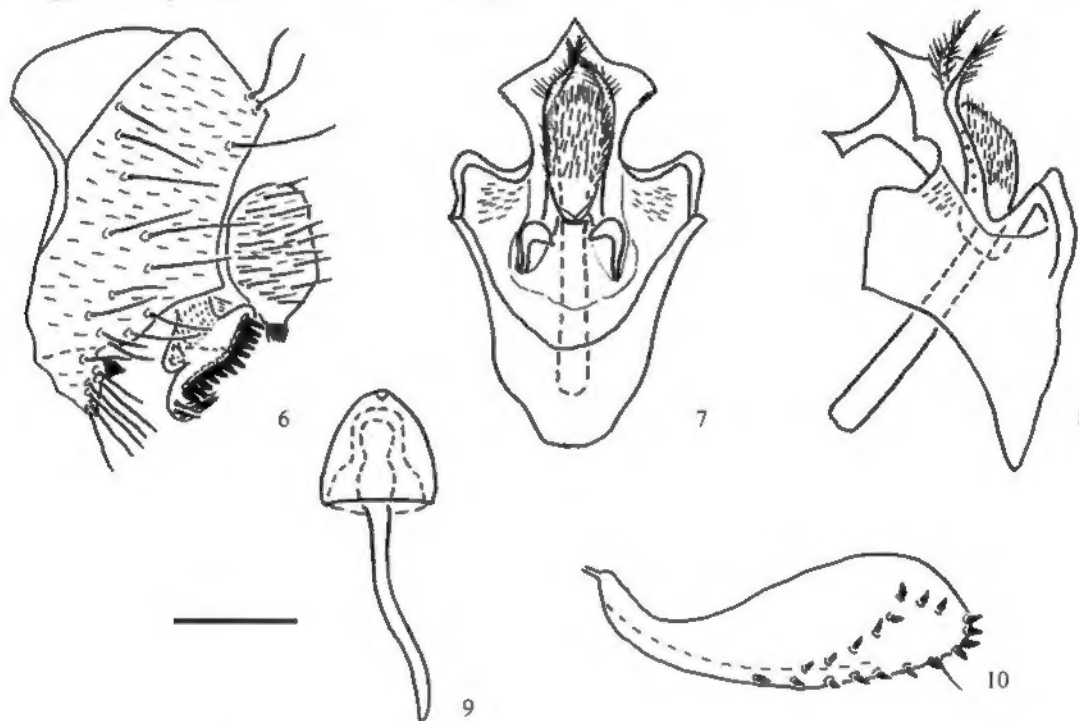
Legs. Yellowish. Preapical setae on all tibiae; apical setae on fore and mid tibiae. Fore 1st tarsomere as long as or slightly longer than 3 succeeding tarsomeres together; mid and hind 1st tarsomeres as long as the rest together.

Abdomen. Tergites and sternites brown.

Male. Terminalia. Epandrium (Fig. 6)

brownish, pubescent, with *ca.* 11 setae on dorsal surface and *ca.* 10 setae on ventral margin. Cercus (Fig. 6) yellowish, oval, entirely pubescent and setigerous, with *ca.* 5 short, stout setae at ventral margin. Surstylus (Fig. 6), surface rough at base of surstylus, with *ca.* 13 primary prenisetae arranging in slightly concave row, with *ca.* 5 long setae on ventral corner and several long setulae pointed up and inward on caudal-ventral surface. Hypandrium (Figs 7–8) nearly triangular, pubescent caudal-ventrally,

paramedian spines absent. Paramere (Figs 7–8) arched, ventral process short, articulated with hypandrium; dorsal process 4 times as long as ventral one, with *ca.* 5 sensilla medially in a row and hairs on the distal 1/3/. Aedeagus (Figs 7–8) short, with dense hairs on surface, apical hairs longer. Apodeme (Figs 7–8) brownish, approximately 2 times as long as aedeagus. Gonodopds (Figs 7–8) brownish, fused and sclerotized, surrounding aedeagus and parameres.



Figs 6–10. *Lordiphosa dentiformis* sp. nov. 6. Epandrium, cercus and surstylus. 7–8. Hypandrium, aedeagus, parameres and gonopods. 9. Spermatheca. 10. Oviscapt. 6, 8, 10. Lateral views. 7. Ventral view. Scale bar = 0.1 mm.

**Female. Terminalia.** Oviscapt (Fig. 10) brown, apically round; with *ca.* 11 lateral and *ca.* 8 marginal pegs, with 1 sub-apical ovisensilla. Antero-ventral bridge narrow. Spermatheca (Fig. 9) semicircular; introvert nearly reached into inner tip of capsule. Introversion and duct both wrinkled.

**Measurements (mm).** BL = 1.83 (1.00–2.34); ThL = 0.99 (0.86–1.09); WL = 2.55 (2.44–2.60); WW = 1.09 (1.03–1.15).

**Indices.** arb = 4–6/2–3; FW/HW = 0.52 (0.50–0.55); ch/o = 0.45 (0.40–0.52); prorb = 0.59 (0.54–0.62); rorb = 0.25 (0.23–0.30); vb = 0.57 (0.44–0.70); dcl = 0.66 (0.63–0.70); scll = 1.66 (1.55–1.75); orbito = 0.46 (0.38–0.50); dcp = 0.56 (0.44–0.63); scltp = 1.42 (1.25–1.50); C = 2.74 (2.41–2.94); 4c = 0.82 (0.77–0.87); 4v = 1.62 (1.55–1.67); 5x = 1.37 (1.33–1.43); ac = 2.58 (2.43–2.69); M = 0.47 (0.46–0.49);

C3F = 0.43 (0.40–0.44).

**Holotype** ♂, Shennongjia, Hubei Province, China, 26 July 1992, coll. M. J. Toda, deposited in PKU. **Paratypes:** 1 ♂, 1 ♀, same data as holotype for collection data, 1 ♂ deposited in SEHU, 1 ♀ deposited in PKU.

**Distribution.** China (Hubei).

**Remarks.** This species belongs to *nigricolor* species-group, resembling *L. baechlii* (Zhang) in Brake and Baechli, 2008, but can be distinguished from *baechlii* by the diagnostic characters, paramere of *baechlii* with extra pair of knife-shaped processes, hypandrium caudal-ventrally two finger-shaped.

**Etymology.** “*dentiformis*” refers to the large tooth-like protuberance on the caudal-ventrally fold-inward-plate of epandrium.

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## 中国拱背果蝇属二新种 (双翅目, 果蝇科)

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**摘要** 记述了中国拱背果蝇属 *Lordiphosa* 内 *nigricolor* 种组的 2 个新种, 整拱背果蝇 *Lordiphosa forcipis* sp. nov. 和齿突拱背果蝇 *Lordiphosa dentiformis* sp. nov.

果蝇科拱背果蝇属 *Lordiphosa* 的 *nigricolor* 种组是构成拱背果蝇属的主要成分 (Zhang, Chen and Peng, 1996; Hu and Toda, 2002) (约 32 种), 占全世界该属总种数的一半以上, 其中分布在中国的种数就达 23 种 (Zhang and Liang, 1992; Zhang 1993a, b; Zhang, Chen and Peng, 1996; Quan and Zhang, 2001; Ma and Zhang, 2009)。还有许多有待描述的新种。本文记述 *nigricolor* 种组的 2 个新种。采用的术语按 Zhang and Toda (1992) 和 Zhang, Chen and Peng (1996) 对果蝇科术语的修订。模式标本部分保存在北京大学生命科学学院 (PKU), 部分保存在日本北海道大学博物馆 (SEHU)。

**整拱背果蝇, 新种 *Lordiphosa forcipis* sp. nov. (图 1~5)**

**鉴别特征** 阳基侧突 (图 2~3) 由 2 对背腹位的弓形侧突组成; 腹位弓形侧突背腹向弯, 背侧细长, 亚中至端部被长感觉毛; 腹侧亚端左右分叉, 似螃蟹的不对称螯肢。背侧位弓形侧突的背侧更长。

正模♂, 中国四川省, 峨眉山, 1992-07-16, M. J. Toda 采。保存在 PKU。副模: 8♂♂, 2♀♀, 同正模。7♂♂, 1♀♀ 保存在 PKU, 1♂, 1♀♀ 保存在 SEHU。

**关键词** 双翅目, 果蝇科, 拱背果蝇属, 新种, 中国。

**中图分类号** Q969.462.2

分布: 中国 (四川)。

该种属 *nigricolor* 种组, 但可以通过鉴别特征与其它种相区别: 具有 2 对弓形的阳基侧突是该种所特有的, 腹位弓形侧突的腹侧端似螃蟹的不对称螯肢状分叉也是该物种阳基侧突的特点。

**词源:** 新种种名源自阳基侧突腹位弓形侧突的腹侧端螯肢状分支。

**齿突拱背果蝇, 新种 *Lordiphosa dentiformis* sp. nov. (图 6~10)**

**鉴别特征** 生殖背板 (图 6) 臀腹角向内侧折叠的骨片上具 1 个巨大骨化突, 似齿。

正模♂, 中国湖北省, 神农架, 1992-07-26, M. J. Toda 采, 保存在 PKU。副模: 1♂, 1♀♀ 同正模。1♂ 保存在 SEHU, 1♀♀ 保存在 PKU。

分布: 中国 (湖北)。

该种属 *nigricolor* 种组, 与 *Lordiphosa baechlii* (Zhang) (Zhang, 1993b; Brake and Baechli, 2008) 近缘, 但可以通过鉴别特征与 *baechlii* 相区别, *baechlii* 的阳基侧突 1 对长刀状腹侧突, 生殖背板臀腹侧为 2 指形突。

**词源:** 新种种名源自位于生殖背板臀腹角内侧的巨大骨化齿状突。

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